

Remarks/Arguments

Claims 1-13 were pending in the application. Claims 12 and 13 were withdrawn as non-elected claims resulting from a restriction requirement. Claims 1-11 were rejected.

Claims 1-11 are cancelled herewith without prejudice and are replaced by new claims 14-18, which include independent claim 14 and dependent claims 15-18. Applicant's attorney felt that this form of amendment, ie, cancellation of the prior claims without prejudice and replacement with "new" amended claims, was the "cleanest" manner in which to present the amendment. Applicant acknowledges having elected former claims 1-11 in response to a telephoned restriction requirement. Accordingly, non-elected claims 12 and 13 are withdrawn.

Claim 14 contains the structural limitations of former claim 1, as well as further specifying the location of the humidifier that provides the beneficial and innovative results heretofore expressed via the functional language. Most of that functional language has now been omitted from the new claims, which now rely upon the novel structural and positional relationships to accomplish the novel functional advantages disclosed in the application. It should be noted that the specific location of the humidifier now included in claim 14, if not as specifically recited, was clearly implied in the language of former claims 5 and 10. Dependent claims 15-18 contain further structural definition/limitation of the heat removal means, humidifier, and/or the energy recovery device. Dependent claims 15-18 are generally similar to the subject matter reflected in prior claims 4-7, respectively.

Applicant, in response to the Examiner's comments in paragraphs 6 through 13 of the Office Action, has recast the claims in a form which emphasizes the structural novelty with significantly less reliance upon functional recitations. The new claims 14-18 are believed to fully obviate the objections/rejections contained in paragraphs 6-12 of the Office Action.

With respect to the concern expressed in paragraph 13 about the word "enthalpy" as used in the now-cancelled claim 6 but retained in new claim 17, applicant submits the following. Applicant has chosen the term or phrase "enthalpy exchange barrier" to comport with that same term in the U. S. Patent 6,274,259 ('259), as described at page

12, line 35 of the present application. This term of art is used to describe the structure or barrier that physically separates two fluid streams, at least with respect to bulk mixing of the two fluids, but which affords a desired but limited transfer of heat and mass (moisture). While further reference may be made to the '259 patent for a fuller understanding of such structure and function, Applicant would also draw attention to the "interdigitated enthalpy exchange device 12" in the reference U. S. Patent 6,416,892 ('892) cited and applied by the Examiner. In each instance, substantially the same device is being described. Particular attention is drawn to the description in the paragraph beginning at Col. 9, line 10 of the '892 reference. As in the '259 patent and the present application, the device there separates (provides a "barrier" against bulk mixing- Col 9, lines 22-24) two fluid streams, but allows enthalpy exchange of mass and heat. In the present application and the '259 patent, the word "barrier" has been included as an indication of the barrier against bulk mixing, but in each instance they are all dealing with and referring to, enthalpy exchange of a similar nature. Accordingly, applicant respectfully submits that the present phraseology is clearly described and understood, as in the present application, the two mentioned prior patents, and by these present comments, and thus is properly used herein.

Attention is now turned to the rejection of the claims as being anticipated under 35 USC 102(b) by the '892 reference (Breault). It is submitted that new claim 14, and claims 15-18 depending therefrom, clearly patentably distinguish over that reference and the other references cited herein. Assuming arguendo that prior claim 1, stripped of its functional language and without the "humidifier" location now specified in new claim 14, might have been literally anticipated by the Breault structure, that is clearly no longer the case with new claim 14, nor was it previously with respect to the limitations clearly implied by former claims 5 and 10. New independent claim 14 specifically recites "a humidifier (70) operatively connected in the coolant loop (114) between the heat removal means (152, 156) and the fuel cell stack assembly coolant region inlet (48) and operatively connected in the inlet oxidant stream (134, 134')". It is this particular location of the humidifier in the coolant loop that affords the benefits previously described in detail in the application (particularly page 13, line 15 to page 15, line 8) and recited in the claims in functional language. Relative to similar prior systems without the

present invention, it is desirable to have a higher grade heat appearing at the inlet to the heat removal means (e. g., fan and radiator), yet it is also desirable to maintain the lower temperature of the coolant as it enters the fuel cell stack assembly. The advantages of such a heat distribution arrangement are clearly described in the application and include the possibility of using a “smaller”, “less expensive” heat removal means. However, to accomplish that heat distribution, it is necessary that the humidifier be located in the coolant loop downstream of the heat removal means but upstream of the coolant inlet to the fuel cell stack assembly. It is believed this specificity of the placement of the humidifier was previously present in prior claims 5 and 10, but is clearly set forth in new claim 14.

By contrast, the device 68 of the Breault patent, cited by the Examiner as being analogous to applicant’s humidifier, is indeed located in the inlet oxidant stream but is clearly not located downstream of the heat removal means 55 in the coolant loop of Breault. For this reason, the configuration of Breault is simply not able to effect the desired distribution of heat in that system that would enable the relative reduction in the capacity of his fan/radiator 55 that is attained in the present application. Accordingly, the amendment of the claims as represented by new independent claim 14 clearly obviates the applicability of Breault reference as either anticipating or in any way suggesting, the claimed invention.

Finally, with respect to the provisional double patenting rejection contained in paragraphs 17-19 of the Office Action, applicant submits the following. Although the present application and co-pending application 10/723,200 were filed on the same date, are owned by the same assignee, and are likely to expire at substantially the same time such that there would be little or no practical disadvantage to filing a terminal disclaimer, applicant respectfully submits that such action should not be required. Firstly, a terminal disclaimer is premature until such time as allowable subject matter of a “problem” nature is indicated in both applications, which has not yet occurred. Were that to occur, the assignee or an attorney of record in the applications would promptly submit the requisite terminal disclaimer(s). Secondly, and more importantly, it is respectfully submitted that there no longer exists such basis for a provisional double patenting rejection, if indeed one ever existed.

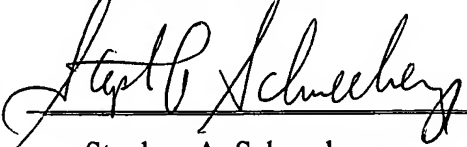
New claim 14 requires a "heat removal means" in the coolant loop and it further requires a humidifier positioned in the coolant loop between the heat removal means and the coolant inlet to the fuel cell stack assembly. Clearly the scope of that claim does not necessarily "fully encompass" the scope of the claims in 10/723,200. Those latter claims do not necessarily require "a humidifier downstream of a heat removal means, both of which are in a coolant loop", which, in effect, is what is required by claim 14. Applicant respectfully submits that the provisional obviousness-type double patenting rejection is not/no longer based on claims (claim 14) of a scope in the present application which necessarily fully encompass the scope of the claims (e. g., claims 1 and 13) of the 10/723,200 application, and accordingly should be withdrawn. As mentioned above, applicant is prepared to file a terminal disclaimer, but only if and when it is convincingly shown to be necessary.

Accordingly, it is respectfully submitted that the claims, as now amended, clearly and patentably distinguish over any appropriate combination of teachings contained in the references cited herein. Entry of this amendment, and favorable reconsideration and an indication of allowance are respectfully requested. In the event issues remain and the Examiner feels the prosecution might be advanced by further discussion, the Examiner is respectfully requested to contact applicant's attorney at the number below.

Respectfully submitted,

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